

Extreme length of lower jaw $24\frac{1}{2}$ inches, suture $5\frac{3}{4}$ inches in length, extending to opposite the seventh tooth on each side. Narrowest portion of lower jaw between fifth and sixth teeth, where it does not exceed an inch and three-eighths. Tenth and eleventh teeth nearly equal, the latter being rather the larger, but by no means exceeding the others in the same proportion that it does in *Crocodilus*. Its attenuated snout, narrow jaws, and small teeth would seem to indicate that it lives principally on fish.

Thus while it offers some analogies with the *Gavialidæ*, its true affinities are undoubtedly with the *Crocodilidæ*, though it may be held to represent the former in the African and other rivers which it inhabits.

April 28, 1857.

John Gould, Esq., F.R.S., V.P.Z.S., in the Chair.

The following papers were read :—

1. OBSERVATIONS ON THE SPECIES OF THE GENUS *MANATUS*.
BY DR. J. E. GRAY, F.R.S., F.L.S., V.P.Z. & ENT. SOC. ETC.

Dr. Balfour Baikie having requested me to examine the skull of the Manatee from Africa, which he described at a preceding meeting, I am induced to send you the following observations.

There appears to be considerable confusion respecting the nomenclature of the skulls of these animals.

M. Cuvier and De Blainville figure the skeleton and skull of the American Manatee (*M. australis*) from the same specimen sent from Cayenne in the Paris Museum. This animal differs essentially from all the four skulls from the American coast which are in the British Museum Collection, in the great elongation of the front of the lower jaw, and the comparative length and narrowness of the nasal opening. A copy of the front part of Cuvier's figures is given by Dr. Harlan as that of *M. americanus*. On the other hand, the four skulls (two of which come from the West Indies and one from Cuba) in the British Museum all agree with the skull figured by M. Cuvier as the *Lamatin du Sénégal**, and also with that (which is probably from the same specimen as Cuvier's in a more imperfect state) which De Blainville figures under the name of *M. latirostris* of Harlan, in the short rounded form of the front end and the prominence of the gonyx on the under side of the lower jaw, and in the shortness and breadth of the nasal opening; and this appears to be different from the skull which De Blainville figured under the name of *M. Senegalensis*. The skeleton of a young female

* The front part of this figure is copied by Dr. Harlan for comparison with that of his *M. latirostris*.

specimen from Jamaica is figured by Sir Everard Home (Lectures, iv. t. 54), and the head of this skeleton is copied under the name of *M. australis* by Wagner (Saugeth. t. 381. f. 4), and the animal is figured from a drawing by Mr. Gosse in the Figures of Animals published by the Christian Knowledge Society, as the *Manati*.

The more adult of the Museum skulls exactly agree with Dr. Harlan's figures of the skull on which he founded *M. latirostris* from the coast of East Florida.

I am inclined to believe that all the skulls from America in the British Museum, and that of a very young specimen in the same Collection, belong to one species, though they vary considerably in the height of the intermaxillary bones, in the comparative length and breadth of the nasal opening, the extent of the bending down of the front of the upper jaw, the completeness and incompleteness of the orbit, and in the smoothness, roundness, or angularity and rugosity of the gonyx of the lower jaw ; but I think that all these differences may be referable to the age and sex of the specimens, the upper jaw being more deflexed and lengthened as the animal increases in age. All the older specimens have a small, conical, rugose, bony prominence in the middle line of the front of the lower jaw, and the apex of the coronoid process truncated and expanded into an angle behind and before, as represented in De Blainville and Cuvier's figures of *M. australis* and *M. latirostris*. This is even the case in the skull of a very young animal with only the milk teeth.

On the other hand, in Dr. Baikie's skull of *M. Vogelii*, and in M. De Blainville's figure of *M. Senegalensis*, the coronoid process of the lower jaw is narrow above, with the hinder upper part obliquely rounded off, and with a slight angle in front ; so that this is probably the character of the African species. I may also remark, that the front of the lower jaw of Dr. Baikie's specimen is produced and very differently shaped from that of any of the American skulls, and in this character it differs from M. De Blainville's figure of *M. Senegalensis* ; but this difference may be only in consequence of its youth.

Dr. Harlan observes :—"Cuvier estimates the teeth at 36, nine on each side ; in both my specimens they do not exceed 32, eight on each side."

In the very young skull above mentioned, which has holes for the rudimentary upper cutting or canine teeth, there are only 24, viz. six on each side ; and the two hinder on each side must have been hidden in the gums. In the older skulls some have eight and others nine on each side, but in most of them only six on each side are perfect ; as the anterior one on each side drops out as the new ones are formed behind, and in each of the skulls two hinder on each side are in the process of development.

But the question of the permanent specific difference between the *M. australis* from Cayenne, the *M. latirostris* from East Florida, Jamaica and Cuba, and between *M. Senegalensis* of Blainville (not of Cuvier, which is like the first) and *M. Vogelii*, must wait for

solution until a larger series of skulls of these species can be procured, and until the other parts of the skeleton can be compared; it being always borne in mind, at least according to my experience, that the skulls and other parts of the skeleton of the animals are quite as liable to vary in form and structure as any of the external soft parts by which they are moulded.

2. ON THE GENUS *NECTURUS* OR *MENOBANCHUS*, WITH AN ACCOUNT OF ITS SKULL AND TEETH. BY DR. JOHN EDWARD GRAY, F.R.S., F.L.S., V.P.Z. & ENT. SOC. ETC.

Dr. Kaup lately sent to me the skull of the *Proteus of the Lakes*, *Necturus maculatus*. As it presents some peculiarities, I am induced to lay a figure and some observations on it before the Society.

1. It is the general belief of the inhabitants of Lake Erie that the bite of the *Proteus of the Lakes* is poisonous.

Dr. Holbrook observes that the fishermen regard these animals "as poisonous, and are consequently seldom taken in hand."

The Hon. Miss Amelia Murray in her 'Letters' mentions this animal as caught in a net at Detroit, under the name of *Fish Lizard* (vol. i. p. 172), and observes: "The fishermen said its bite was very poisonous, and it had the yellowish-brown lurid look which seems to appertain to venomous reptiles; but Dr. Kirtland says it is perfectly harmless."

And this latter opinion appears to be the almost unanimous impression of the naturalists of America.

Yet the examination of the teeth will almost justify the popular belief, and at least render it very desirable that the animal should be examined in its living state, and that its bite be submitted to careful experiment.

The upper jaw of the skull is furnished with two series of small, acute, uniform, nearly transparent, conical, slightly curved teeth, the outer series being placed on the narrow intermaxillary bone, the inner series on the front edge of the vomer and on the outer edge of the lateral processes of the pterygoid bone. The lower jaw has a single series of similar teeth, which lock between the two series above described.

All these teeth have a conical cavity on the hinder part of their base, with a short linear slit on the middle of the inner side, and an oblong perforation above the slit in the middle of the inner side of the tooth. The form of these teeth is exactly similar to the fang of poisonous Serpents; that is to say, the cavity is not a hollow in the substance of the tooth itself, but is formed by the sides of the teeth being produced and folded together, leaving a conical cavity in the inner side of the base, as is easily proved by the examination of the teeth, which shows that the cavity is lined with enamel; and the junction of the two lateral expansions is rarely complete, but marked by a more or less distinct or continued slit between the basal notch and the subcentral foramen. In the poisonous Snakes the duct of